CLAIMS

What is claimed is:

1. An RF tag, comprising:

a receiver for interrogator signal, which receives a signal from an interrogator;

a generator for synchronization signal, which generates a synchronization signal based on the interrogator signal received by said receiver for interrogator signal;

an acquirer for response information, which acquires response information based on the interrogator signal received by said receiver for interrogator signal;

a spread-code modulator, which acquires spread-code modulated response information by spread-code modulating the response information acquired by said acquirer for response information; and

a transmitter, which transmits a response signal, which includes the spread-code modulated response information as data area acquired by said spread-code modulator, based on the synchronization signal generated by said generator for synchronization signal at random transmission interval.

2. The RF tag according to Claim 1, wherein

said transmitter comprises,

a repeated transmission means, which repeatedly transmits said response signal at random transmission interval.

3. The RF tag according to Claim 2, comprising:

a stopper, which stops transmission by said repeated transmission means.

4. The RF tag according to Claim 3, comprising:

a receiver for stop instruction, which receives a stop instruction, wherein

the stop instruction is transmitted from the interrogator based on the response signal transmitted from said transmitter, and is for stopping transmission by said repeated transmission means, and

said stopper comprises,

a stopping means according to instruction, which stops transmission by repeated transmission means based on the stop instruction received by said receiver for stop instruction.

5. The RF tag according to Claim 3 or 4, wherein

said stopper comprises,

a releasing means for stop instruction, which releases said stopped state.

6. The RF tag according to any one of Claims 3 to 5, wherein

said stopper comprises:

an acquisition means for proof information, which acquires proof information corresponding to the response signal transmitted from said transmitter; and

a proof-dependent stopping means, which stops transmission only when the proof information acquired by said acquisition means for proof information fulfils a predetermined condition.

7. The RF tag according to any one of Claims 1 to 6, wherein

said random transmission interval is a random transmission interval based on a predetermined rule.

8. The RF tag according to Claim 7, wherein

in said predetermined rule, an average value of transmission interval is a certain period of

time.

9. The RF tag according to any one of Claims 1 to 8, comprising:

a storage for RFID information, which stores RFID information, which is information for unique identification of itself, wherein

the response signal acquired by said acquirer for response information includes the RFID information acquired from said Storage for RFID information.

10. The RF tag according to any one of Claims 1 to 9, comprising:

a storage for identification code, which stores an identification code; and

a generator for header, which generates a header including the identification code stored in said storage for identification code.

11. The RF tag according to Claim 10, wherein

a signal configuring said header is an non-interferential signal even if it is overlapped with a signal configuring a data area of another RF tag having the same configuration as that of itself upon decoding of the spread-code by the interrogator.

12. The RF tag according to Claim 10, wherein

a signal configuring said data area is an non-interferential signal even if it is overlapped with a signal configuring a header of another RF tag having the same configuration as that of itself upon decoding of the spread-code by the interrogator.

13. A RF tag set, comprising an aggregation of a plurality of the RF tag according to any one of Claims 1 to 9.

14. An RF tag set, comprising an aggregation of a plurality of the RF tags according to any one of Claims 10 to 12.

15. The RF tag set according to Claim 14, wherein

an identification code of said header is common among said aggregation of a plurality of RF tags.

16. The RF tag set according to any one of Claims 13 to 15, wherein

the spread-codes used in the different tags are different from each other, in which the spread-code is used in the spread-code modulator of respective RF tags in said aggregation of a plurality of RF tags.

17. The RF tag set according to any one of Claims 13 to 15, wherein

a plurality of spread-codes are used in the spread-code modulator of respective RF tags in said aggregation of a plurality of RF tags.

18. An interrogator, comprising:

an acquirer for interrogator signal, which acquires a interrogator signal;

a transmitter for interrogator signal, which transmits the interrogator signal acquired by the acquirer for interrogator signal;

an acquirer for synchronization signal, which acquires a synchronization signal correlated with said interrogator signal; and

a receiver for response signal, which receives a response signal from RF tag to the interrogator signal transmitted from said transmitter for interrogator signal on the basis of the synchronization signal acquired by said acquirer for synchronization signal.

19. The interrogator according to Claim 18, comprising:

a measurer for response signal intensity, which measures intensity of the response signal received by said receiver for response signal;

a selector, which selects the response signal having a predetermined response signal intensity measured by said measurer for response signal intensity; and

a first decoder, which decodes the response signal selected by said selector.

20. The interrogator according to Claim 19, wherein

the first decoder comprises,

an acquisition means for RFID information, which acquires RFID information for unique identification of the RF tag according to Claim 9 by decoding spread-code modulated response information,

comprising:

a transmitter for stop instruction, which transmits a stop instruction for stopping transmission of a signal to the RF tag according to Claim 9, which is identified by the RFID information acquired by said acquisition means for RFID information.

21. The interrogator according to Claim 18, comprising:

a measurer for response signal intensity, which measures intensity of the response signal received by said receiver for response signal; and

a second decoder, which decodes a response signal, of which intensity fulfils a predetermined condition, if the response signal intensity measured by said measurer for response signal intensity fulfils a predetermined condition.

22. The interrogator according to Claim 21, wherein

said second decoder comprises,

an acquisition means for RFID information, which acquires the RFID information, which is information for unique identification of the RF tag according to Claim 9, by decoding the spread-code modulated response information,

comprising:

a transmitter for stop instruction, which transmits a stop instruction for stopping transmission of a signal to the RF tag according to Claim 9, which is identified by the RFID information acquired by said acquisition means for RFID information.

23. The interrogator according to any one of Claims 19 to 22, wherein

said response signal comprises,

a header including an identification code for measuring the response signal intensity, and

said measurer for response signal intensity comprises,

a correlator, which measures said response signal intensity based on a correlation between an identification code included in said header and a predetermined reference code.

24. The interrogator according to any one of Claims 19 to 23, wherein

said measurer for response signal intensity comprises,

a storage means for measurement time constant, which stores said measurement time constant for setting a measurement time for measuring said response signal intensity.

25. The interrogator according to Claim 24, wherein

the measurement time constant stored by said storage means for measurement time constant is a maximum value of response signal length.

26. The interrogator according to Claim 24 or 25, wherein

said measurer for response signal intensity comprises,

a changing means for measurement time constant, which changes said measurement time constant.

27. The interrogator according to Claim 24, wherein

the measurement time constant stored by said storage means for measurement time constant is a maximum value of header length.